

**Report 1**

Submitted to:

*National Oceanic and Atmospheric  
Administration  
Climate and Global Change Program*

*under*

***GEWEX Americas Prediction Project (GAPP)***

*entitled:*

**Research and Expanded Archiving and Distribution of  
the GCIP/GAPP Surface Radiation Budget Products**

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Dr. J. D. Tarpley, NOAA/NESDIS  
Dr. K. Mitchell, NOAA/NCEP

Period covered: February 1, 2003 to January 31, 2004

## **Research and Expanded Archiving and Distribution of the GCIP/GAPP Surface Radiation Budget Products**

Principal Investigator: Rachel T. Pinker  
University of Maryland  
College Park, MD

### **Objective of Activity**

The objective of this activity is to continue and expand capabilities to provide real-time information on surface radiative fluxes as derived from satellite observations to the scientific community. Addressed are special needs of GAPP and CEOP, and several outstanding scientific issues relevant for improving such information, in particular, during the cold season. It is hoped that the results from this project will continue to be instrumental in improving the understanding of the hydrologic cycle, by providing key forcing functions; provide information for testing numerical models used for prediction; provide information to study how changes in terrestrial ecosystems affect primary productivity and the carbon budget; improve prospects for assessing effects of natural and human induced changes on the environment, by providing information for validating models that are used to predict effects of radiatively important gases; and for snow melt modeling. It will also provide continuity in data, facilitate updates in archived information and capabilities to reprocess data when such need arises.

### **Work accomplished**

- (a) continued the archiving activity at the University of Maryland, to provide the scientific community with a real-time quality controlled data on surface radiative fluxes, as produced from satellite observations;

We provide “Current Data”, namely, data for the current month, in real time as shown at: <http://www.atmos.umd.edu/~srb/gcip/cgi-bin/current.cgi?auth=no>  
At the end of the month, these data are moved to a site called: “Historic Data”, and a new cycle begins.

- (b) continued the “Real Time” evaluation of this the shortwave fluxes as well as the PAR fluxes.

This information is displayed only for the last 7-10 days, and subsequently replaced with newer results. To allow the used to look at the quality of data for any period he/she wishes, software is under development to do so. As yet, this software is in the testing phase. It is planned to have it linked to the Web during the FY 2004/2005.

- (c) addressed snow issues and explained to the public what they are, as illustrated at:  
[http://www.atmos.umd.edu/~srb/gcip/reprocess/g\\_sncm-new\\_02.html](http://www.atmos.umd.edu/~srb/gcip/reprocess/g_sncm-new_02.html)
- (d) kept the public updated during the transition period between GOES-11 to GOES-12 as to the status of data quality, as presented at:  
<http://www.atmos.umd.edu/~srb/gcip/updates.htm>
- (e) prepared the infrastructure and necessary changes in software to accommodate new results as will become available under the “Reprocessing Activity”. One year of data (for 1997) was already put on the we, at:  
<http://www.atmos.umd.edu/~srb/gcip/reprocess/gallery.htm>

Moreover, a comprehensive comparison of several parameters as available from various sources and at different resolutions was prepared, so the users can decide what scale is most appropriate for them, as can be seen for shortwave fluxes at:

[http://www.atmos.umd.edu/~srb/gcip/reprocess/g\\_sdam-new.html](http://www.atmos.umd.edu/~srb/gcip/reprocess/g_sdam-new.html)

- (f) expand the number of parameters to be provided; for this purpose, the NOAA algorithm for surface skin temperature was implemented at the University of Maryland and the satellite observations in the IR were re-run to obtain information on this parameter. This information as well as information on cloud amount has been added to the web site as can be seen at:  
<http://www.atmos.umd.edu/~srb/gcip/cgi-bin/historic.cgi?auth=no>
- (g) created new database for GCIP/GAPP validation against SURFRAD ground truth.
- (h) Examples of communication with the user’s community are included in Appendix A.

## Appendix A

### Sample of data request communications

Date: Wed, 31 Mar 2004 16:28:16 -0500  
 From: Beth Wilder <BWilder@sjrwmd.com>  
 To: pinker@atmos.umd.edu  
 Subject: Practical use of GOES data  
 Parts/Attachments:  
     1 OK      ~32 lines Text (charset: ISO-8859-1)  
     2 Shown    ~63 lines Text (charset: ISO-8859-1)  
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Ms. Pinker,

In speaking to a colleague, Dr. Jennifer Jacob at the University of New Hampshire your name was given as potential source of information I am seeking. Are you aware of any state or government agencies that utilize GOES data in practical terms (not research)?

I'm looking for material that supports the practical use of GOES data to gain approval of its use by the water management districts. I would like to be able to demonstrate that the GOES data is acceptable and routinely used. We would like to utilize incoming solar radiation to determine potential evapotranspiration for use in regional transient ground water flow models and AFSIRS crop model

I'd appreciate any insight you can offer.

Thank you.

Sincerely,

Beth

Mary Beth Wilder  
 Project Manager  
 Division of Water Supply Management  
 St Johns River Water Management District  
 Palatka, Florida                   386-329-4579

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Date: Tue, 16 Dec 2003 18:22:19 -0500  
 From: ytian <ytian@eas.gatech.edu>  
 To: pinker@atmos.umd.edu  
 Subject: SRB diffuse PAR

Dear Dr. Pinker,

I'm Yuhong Tian, a postdoc working with Dr. Robert E. Dickinson. My work here is trying to improve the land model by application of satellite observations.

Recently, I read your paper about the SRB data and searched the website

(<http://www.atmos.umd.edu/~srb/gcip/>). I'm very interested in the PAR data, including diffuse PAR (as you mentioned in your paper submitted to JGR GCIP3 special issue).

However, I could only find the total PAR on the above mentioned web. I'm just wondering, if I can get diffuse PAR too, from your group? Thank you very much!

Best wishes,  
Yuhong  
Earth and Atmospheric Sciences  
Georgia Institute of Technology  
Atlanta, GA 30332

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Date: Fri, 13 Feb 2004 17:58:51 -0000  
From: Felipe Andrés Aguilera Barraza <faguib@ucn.cl>  
To: pinker@atmos.umd.edu  
Subject: question

Dr. Pinker

I'm student of geology from Chile and I need some information about GOES satellite and I saw the next abstract and I want to know if you have the PDF file and if I can get it:

JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 108, NO. D11, 4326,  
doi:10.1029/2002JD002422, 2003

Estimation of land surface temperature from a Geostationary Operational Environmental Satellite (GOES-8)

Donglian Sun and Rachel T. Pinker  
For your help, thanks

Felipe Andrés Aguilera Barraza  
Egresado de Geología  
Universidad Católica del Norte  
Avenida Angamos 0610  
Tel: (056)(55)355967  
(056)(55)355968  
Antofagasta  
Chile

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Date: Thu, 10 Jul 2003 11:38:25 +0200  
From: "[iso-8859-1] gennaro.ascione" <gennaro.ascione@libero.it>  
To: "[iso-8859-1] pinker" <pinker@atmos.umd.edu>  
Subject: [iso-8859-1] italian student

Good morning,

I'm an Italian student of Parthenope University of Naples.  
Could you tell me how to convert PAR data from microEinstein/(m<sup>2</sup>\*s) to W/m<sup>2</sup>? and from micromole/(m<sup>2</sup>\* s) to W/m<sup>2</sup> ?  
regards,  
Isabella Ascione